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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/970,957	10/03/2001	Yasuhiko Ishikawa	482782005700	2665

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EXAMINER

LEWIS, TISHA D

ART UNIT	PAPER NUMBER
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3681

DATE MAILED: 10/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/970,957

Applicant(s)

ISHIKAWA, YASUHIKO

Examiner

TISHA D. LEWIS

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 20 is/are rejected.
- 7) ☒ Claim(s) 17-19 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: .

DETAILED ACTION

The following is a first action on the merits of application serial no. 09/970,957 filed on October 3, 2001.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statement filed on October 3, 2001 has been acknowledged.

Specification

The disclosure is objected to because of the following informalities:

- On page 2, line 12, --to-- should be inserted between "arranged" and "each".
- On page 2, line 19, --the-- should be inserted between "between" and "support".
- On page 3, line 10, --from-- should be inserted between "spaced" and "each".
- On page 5, line 32, "Figs" should be changed to --Figures--.
- On page 9, line 24, "51A" should be changed to --51Aa--.

Appropriate correction is required.

Claim Objections

Claims 3 and 13 are objected to because of the following informalities:

- In the claim 3, line 3, --to-- should be inserted between "arranged" and "each".
- In the claim 13, line 3, --to-- should be inserted between "connected" and "the".

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-In the claim 13, line 4, --from-- should be inserted between "spaced" and "each".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-16 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirota ('421). As to claim 1, Hirota discloses a differential including

a differential housing (21),

torque mechanism members (side gears 39, 41 and transmission mechanism (67) supported to the housing for relative rotation and,

a clutch system (55 and 79) for connecting the torque mechanism members and the differential housing via a torque path for relative rotation therebetween.

As to claim 2, Hirota discloses support members in the form of gears (63, 65) connecting the torque mechanism members (39, 41) to the differential housing.

As to claim 3, Hirota discloses the support members arranged coaxially with the clutch system.

As to claim 4, Hirota discloses another gear (59) disposed radially with the support member (63).

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As to claim 5, Hirota discloses the clutch system including a first clutch (55) disposed between the torque members (41) and the housing,

an actuator (73, column 5, lines 12-16) for operating the clutch and, the clutch being disposed between the support member (65) and the actuator.

As to claim 6, Hirota discloses the support members supporting the torque members by being made integral (39 and 63).

As to claim 7, Hirota discloses the actuator (73) located on a end of a torque member (41) and the first clutch located away from the end.

As to claim 8, Hirota discloses the support members (63, 65) coaxially arranged with the clutch system.

As to claim 9, Hirota discloses the actuator (73) used as a converter (column 8, lines 59-63) including a second clutch (79).

As to claim 10, Hirota discloses the actuator having an electromagnet (89) engaging the second clutch.

As to claim 11, Hirota discloses the electromagnet including a core and a ring (93) acting as a rotor for magnetic conduction (column 4, lines 65-68) supported by a wall (91) of the differential housing.

As to claim 12, Hirota discloses the converter having a cam mechanism (71) operated by the second clutch.

As to claims 13-15, Hirota discloses the second clutch having first clutch plates connected to a torque member (67) via the differential housing wherein the plates are spaced from each other by second clutch plates connected to the converter (Figure 4).

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As to claim 16, Hirota discloses the electromagnet having an armature (81) for magnetic attraction of the second clutch and spaced radially from the torque member (41).

As to claim 20, Hirota discloses a differential system including a transmission member (67) transmitting drive torque, a differential , torque mechanism members (side gears 39, 41 and transmission mechanism (67) supported to the housing for relative rotation and, a clutch system (55 and 79) for connecting the torque mechanism members and the differential housing via a torque path for relative rotation therebetween.

Allowable Subject Matter

Claims 17-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose or render obvious a motivation to provide for:

-(As to claim 17) a differential including an actuator using an electromagnet with a rotor having angularly spaced openings wherein the rotor is located inward of a coil.

-(As to claim 19) a differential including a support member in the form of bearings arranged in axial alignment to each other for supporting a torque transmission member to a differential housing.

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Submission of your response by facsimile transmission is encouraged. Group 3600's facsimile number is **(703) 305-3597**. Recognizing the fact that reducing cycle time in the processing and examination of patent applications will effectively increase a patent's term, it is to your benefit to submit responses by facsimile transmission whenever permissible. Such submission will place the response directly in our examining group's hands and will eliminate Post Office processing and delivery time as well as the PTO's mail room processing and delivery time. For a complete list of correspondence **not** permitted by facsimile transmission, see MPEP 502.01. In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee which applicant is paying by check **should not be** submitting by facsimile transmission separately from the check.

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Typed or printed name of person signing this certificate:

(Signature)

If your response is submitted by facsimile transmission, you are hereby reminded that the original should be retained as evidence of authenticity (37 CFR 1.4 and MPEP 502.02). Please do not separately mail the original or another copy unless required by the Patent and Trademark Office. Submission of the original response or a follow-up copy of the response after your response has been transmitted by facsimile will only cause further unnecessary delays in the processing of your application; duplicate responses where fees are charged to a deposit account may result in those fees being charged twice.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

-Ikeda et al ('408) is cited as having a drive force transmission including an actuator with a cam mechanism, an electromagnet and a second clutch for operating a first clutch.

-Niizawa et al ('333), Ishikawa et al ('002) and Japanese patent 407305754 are all cited as having differential systems including actuators with cam mechanisms, electromagnets and a second clutch, but the actuators do not directly operate a first clutch.

-Roscoe ('677) is cited as having a differential including an actuator with a cam mechanism, an electromagnet and a second clutch in the form of a viscous coupling.

-Keller ('181) is cited as having a differential including an electromagnet and a first and second clutch from coupling torque between a differential housing and a torque transmission mechanism.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to TISHA D. LEWIS whose telephone number is 703-305-0921. The examiner can normally be reached on M-Thur 8 AM TO 3 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHARLES A. MARMOR can be reached on 703-308-0830. The fax phone numbers for the organization where this application or proceeding is assigned are 703-

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305-3597 for regular communications and 703-305-3597 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2168.


Tisha D. Lewis
Patent Examiner
AU 3681
October 18, 2002